

# RECLINING MASSAGER SYSTEM

By

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## BACKGROUND OF THE INVENTION

The invention relates generally to a massaging device. More particularly, the present invention relates to an improved reclining massager system capable of efficiently treating bodily malfunctions such as back pain and gastrointestinal weakness by applying a therapeutic massaging treatment along the back and neck of a patient resting on the system serving as a reclining chair whose massaging bumps are to massage along the patient's spinal cord and neck in a double reciprocation mode.

Conventional reclining chairs adopting spinal massaging mechanism are disclosed to employ a vertical or lengthwise reciprocation and massage balls attached to a mounting member that allows the massage balls to make the vertical reciprocation along a user's back and neck. A disadvantage of such conventional arts is an optimal combination of the lengthwise reciprocation and the pushing momentum of the massage balls toward the user's back. Such pushing momentum needs to be optimally

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controlled depending on individuals using a reclining  
massager.

For example, a slim woman with a back pain may  
require a stronger pushing momentum than normal and at  
5 the same time more easily feels pain as the massage balls  
apply to the back with the required strong momentum. A  
demand on the market is to apply controllability to  
pushing mechanism of the massage balls to demonstrate a  
steady and robust therapeutic effects while harmonizing  
10 the lengthwise reciprocation with the pushing momentum of  
the massage balls toward the user's back and neck.

#### **SUMMARY OF THE INVENTION**

The present invention is contrived to overcome the  
15 conventional disadvantages. Accordingly, an object of the  
invention is to provide a reclining massager system  
serving as a reclining chair employing a therapeutic  
massaging mechanism. Another object is to employ a gear  
mechanism for a forwardly pushing of massage bumps to  
20 maximize combinational effects with a vertical or  
lengthwise reciprocation of massage bumps.

A further object is to improve product reliability  
and customer satisfaction by reliably synthesizing the  
lengthwise and a forward reciprocations of the massage  
25 bumps.

To achieve these and other objects, the reclining  
massager system according to the present invention  
comprises a base, a back support to place a user's back  
and neck thereon when the user is seated in the base. The  
5 back support has a cover, first and second ends of which  
the first end is rotatably connected to the base in a  
controllably reclining format. A rider makes a  
lengthwise reciprocal movement between the first and  
second ends of the back support, and a lifter is liftedly  
10 engaged to the rider so that the lifter makes a forward  
reciprocal movement perpendicular to the lengthwise  
reciprocal movement of the rider.

In this construction, massage bumps veiled by the  
cover and attached atop the lifter are provided to  
15 massage along the user's back and neck in accordance with  
the relative movements of the rider and lifter. The  
lifter comprises a roller gear engaged to and powered by  
a first motor where the first motor is fixed to the rider,  
a bump support having a top portion and a bottom portion  
20 where the massage bumps are mounted on the top portion,  
and an engagement body downwardly extending from a bottom  
portion of the bump support where a lower portion of the  
engagement body is releasably inserted in and fittingly  
supported by the rider. Here, an opening is formed  
25 through the engagement body to define inner walls, and

one of the inner walls is configured to a rack gear so  
that the first roller gear is rollably engaged to the  
rack gear, whereby the roller gear rotation by the first  
motor enables the lifter to make the forward reciprocal  
5 movement.

Alternately, the lifter may include a bump support  
having a top portion and a bottom portion where the  
massage bumps are mounted on the top portion, and a gear  
unit including a bolt gear downwardly extending from the  
10 bottom portion of the bump support, an elongated nut type  
gear having a circular outer periphery, a first gear  
incorporated on and along the circular outer periphery,  
and a second gear engaged to the first gear and connected  
to a first motor attached to the rider. The bolt gear is  
15 releasably engaged in the nut type gear whose bottom end  
is rotatably attached to and supported by the rider,  
whereby the second gear rotation generates the first gear  
rotation and the subsequent rotation of the nut type gear  
enables the lifter to make the forward reciprocal  
20 movement in accordance with the releasable engagement of  
the bolt gear and the nut type gear.

In a preferred version, a pair of pulleys are linked  
by a rope and respectively mounted in the first and  
second ends of the back support, and a predetermined  
25 portion of the rope is fixedly attached to the rider so

that the pulley rotation enables the rider to generate the lengthwise reciprocal movement. Also, guide rails are provided substantially parallel to the rope and between the first and second ends of the back support, and guide  
5 rollers attached to the rider are rollably fit in the guide rails to facilitate the lengthwise reciprocation of the rider.

For a better performance, a threaded shaft geared through the nut and rotatably engaged at the first and  
10 second ends of the back support to generate the lengthwise reciprocal movement of the rider where the rider has at least one nut fixed thereto. The massage bumps are partitioned to first and second pairs so that each pair bumps are aligned parallel to the direction of  
15 the rider reciprocation. Further, first and second bump holders propping and maintaining the first and second pair bumps, and the first and second bump holders are tapered toward each lower end thereof. A first engagement member is provided to rockingly engage the lower ends of  
20 the bump holders to the top portion of the lifter, and a second engagement member is provided to rollingly engage the massage bumps thereto. The massage bumps each include a heater and the heater is preferably a heating lamp generating heat and infrared rays. And, at least one of

the massage bumps is fixed to the lifter and shaped in hemisphere.

Advantages of the present inventions are numerous. Most of all, the reclining massager system according to  
5 the present invention optimally combines a lengthwise reciprocation of massage bumps with a forwardly reciprocal movement for thereby maximizing massaging effects on the back and neck of a patient resting on the massager system.

10 Further, the combination of the double reciprocations results in a conspicuous therapeutic effects by realizing a virtually total back massaging while resting on the massager system. Also, the massager maximally synthesizes multiple reciprocations in the  
15 movement of the massage bumps in a therapeutic format, thereby enhancing product reliability and customer satisfaction.

Although the present invention is briefly summarized, the full understanding of the invention can be obtained  
20 by the following drawings, detailed description and appended claims.

## BRIEF DESCRIPTION OF THE DRAWINGS

These and other features, aspects and advantages of the present invention will become better understood with reference to the accompanying drawings, wherein:

5        FIG. 1 is a construction view showing a reclining massager system according to the present invention;

FIG. 2 is a perspective view showing reciprocation mechanism of massage bumps in FIG. 1;

FIG. 3 is a perspective view showing a mechanism of  
10 forward reciprocation of the massage bumps in FIG. 1;

FIGS. 4A-4D are views showing forward reciprocations implemented in the present invention;

FIGS. 5A and 5B are views showing forward reciprocations in another embodiment of the present  
15 invention; and

FIG. 6 is a construction view showing a further embodiment of the present invention.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

20        FIG. 1 shows a brief construction of a reclining massager system **10** according to a preferred embodiment of the present invention. FIG. 2 shows a mechanism of a lengthwise reciprocation and a forwardly reciprocal movement of massage bumps **12**, and FIG. 3 shows a detailed  
25 mechanism of the forwardly reciprocal movement. As shown

therein, the reclining massager system **10** includes a base **14** and a back support **16** to place a user's back and neck thereon when the user is seated in the base. The base **14** includes a calf support **18** that can be lifted as the back support **16** becomes in accordance with a user's manipulation of a controller **20**.

The back support **16** has a cover **22**, first and second ends **24**, **26**. The first end **24** is rotatably connected to the base **14** in a controllably reclining format.

Specifically, the first end **24** serving as a lower end of the back support **16** is controllably connected to a rear portion **15** of the base **14**. In this construction, a rider **28** is provided within the back support **16** to make a lengthwise reciprocal movement **X** between the first and second ends **24**, **26** of the back support **16**. In a preferred embodiment, a pair of pulleys **30**, **32** powered by a pulley motor **33** are linked by a rope **34** and respectively mounted in the first and second ends **24**, **26** of the back support **16**. Here, a predetermined portion **36** of the rope **34** is fixedly attached to the rider **28** so that the pulley rotation enables the rider **28** to generate the lengthwise reciprocal movement **X**. In order to stabilize the lengthwise reciprocation **X** of the rider **28** it is recommended that the rider **28** reserves a hole **38** to receive the rope **34**.



To further stabilize the lengthwise reciprocal movement **X** of the rider **28** in the pulley mechanism, the massager system **10** includes guide rails **40** provided substantially parallel to the rope **34** and between the  
5 first and second ends **24**, **26** of the back support **16**, and guide rollers **42** attached to the rider **28**. Here, the guide rollers **42** are rollably fit in the guide rails **42** to facilitate the lengthwise reciprocation **X** of the rider **28**. Specifically, the guide rollers **42** are housed within  
10 a side recess **44** formed along the guide rails **42**.

A lifter **46** is liftedly engaged to the rider **28** so that the lifter **46** makes a forward reciprocal movement **Y** perpendicular to the lengthwise reciprocal movement **X** of the rider **28**. The lifter **46** comprises a roller gear **48**  
15 engaged to and powered by a first motor **50** fixed to the rider **28**, a bump support **52** having a top portion **54** and a bottom portion **56** where the massage bumps **12** are mounted on the top portion **54**, and an engagement body **58** downwardly extending from a bottom portion **56** of the bump  
20 support **52**.

As shown in FIGS. 4A-4D, a lower portion **60** of the engagement body **58** is releasably inserted in and fittingly supported by the rider **28**, and an opening **60** is formed through the engagement body **58** to define inner  
25 walls **64**. One of the inner walls **64** is configured to a

rack gear **66** so that the first roller gear **48** is rollably engaged to the rack gear **66**, whereby the roller gear rotation by the first motor **50** enables the lifter **46** to make the forward reciprocal movement **Y** perpendicular to the lengthwise reciprocation **X** of the rider **28**. That is, when the roller gear **48** engaged to the rack gear **66** of the engagement body **58** makes a clockwise rotation, the bump support **52** becomes lowered accordingly and the massage bumps **12** also becomes lowered subsequently.

Whereas, a counterclockwise rotation of the roller gear **48** serves to raise the bump support **54** and subsequently the massage bumps **12** become raised. Accordingly, when the user rests on the massager system **10** with the back on the back support **16**, the massage bumps **12** controllably apply to the back and neck of the user for massaging effects. Here, the pushing momentum of the massage bumps **12** toward the user's back and neck is adjustable by controlling the motor **50**.

As further shown in FIGS. 5A and 5B, the lifter **46** implemented in an alternate mode includes a gear unit **70** including a bolt gear **72** downwardly extending from the bottom portion **56** of the bump support **52**, an elongated nut type gear **74** having a circular outer periphery **76**, a first gear **78** incorporated on and along the circular outer periphery **76**, and a second gear **80** engaged to the

first gear **78** and connected to a first motor **82** attached to the rider **28**. In this construction, the bolt gear **72** is releasably engaged in the nut type gear **74** whose bottom end **84** is rotatably attached to and supported by the rider **28**, whereby the second gear **80** rotation generates the first gear **78** rotation and the subsequent rotation of the nut type gear **74** enables the lifter **46** to make the forward reciprocal movement **Y** in accordance with the releasable engagement of the bolt gear **72** and the nut type gear **74**.

FIG. 6 shows another embodiment of the reclining massager system **10** where a threaded shaft **86** is employed for the lengthwise reciprocation **X** of the rider **28**. In this construction, the rider **28** is preferably provided with at least one nut **88** fixed thereto so that the threaded shaft **86** is geared through the nut **88** and rotatably engaged at the first and second ends **24,26** of the back support **16** to generate the lengthwise reciprocal movement **X** of the rider **28** therealong.

Such double reciprocation mechanism **X, Y** upgrades therapeutic massaging effects of the massage bumps **12** to the user's back and neck. The massage bumps **12** are veiled by the cover **22** and attached atop the lifter **46** to massage along the user's back and neck in accordance with the relative movements of the rider **28** and lifter **46**.

Preferably, the massage bumps **12** are partitioned to first and second pairs so that each pair bumps are aligned parallel to the direction of the rider reciprocation **X**.

The first and second bump holders **90, 92** are  
5 provided to prop and maintain the first and second pair bumps, and the first and second bump holders **90, 92** are tapered toward each lower end **91, 93** thereof. A first engagement member **94** serves to rockingly engage the lower ends **91, 93** of the bump holders **90, 92** to the top portion  
10 **54** of the lifter **46**. A second engagement member **98** serves to rollingly engage the massage bumps **12** thereto. At least one **100** of the massage bumps **12** is fixed to the lifter **46** without being hooked by a bump holder and shaped in hemisphere. When the bumps **12** are aligned  
15 parallel to each other by the bump holders **90, 92** the fixed bump **100** is centered among the bumps **12**. The massage bumps **12** each include a heater **102**, and the heater **102** is preferably a heating lamp generating heat and infrared rays. The massage bumps **12** may be shaped in  
20 a substantially spherical format.

As discussed above, an advantage of the present inventions is that the reclining massager system **10** optimally combines the lengthwise reciprocation **X** of massage bumps **12** with a forwardly reciprocal movement **Y**  
25 to maximize massaging effects on the back and neck of a

patient resting on the massager system 10. Further, the combination of the double reciprocations **X**, **Y** results in a conspicuous therapeutic effects by realizing a virtually total back massaging while resting on the  
5 massager system 10. Also, the massager maximally synthesizes multiple reciprocations for the movement of the massage bumps in a therapeutic format, thereby enhancing product reliability and customer satisfaction.

Although the invention has been described in  
10 considerable detail, other versions are possible by converting the aforementioned construction. Therefore, the scope of the invention shall not be limited by the specification specified above and the appended claims.